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A Catalogue of 480 Stars to be used as Fundamental Stars for Observations of Zones between 20° and 80° South Declination.

By Prof. A. Auwers.

One of the most important works to be done by the next generation of astronomers will consist in a new and systematic determination of the places of the southern fixed stars down to the 9th magnitude.

One object of this determination will be the completion of the general knowledge of stellar proper motions by comparisons to be made with Dr. Gould's determinations for the epoch 1875. If this alone were considered, the new observations might advantageously be deferred some ten or twenty years more. But the wants of the great photographic survey, to be made according to the Paris programme with a mean epoch of probably 1900±, will render it preferable to have this new determination made nearly for this same epoch.

The most efficient way to secure homogeneousness and completeness in this determination will be the arrangement of zone-observations like those of the Astronomische Gesellschaft, till now made between the declinations 80° and −2°, and presently to be extended to −23°, constructing the working lists for the zones from the preliminary photographic survey of the southern heavens by which Dr. Gill has undertaken to complete the Bonner Durchmusterung. Astronomers hope to have the results of this survey within the next few years, and in order to enable the southern observatories then not only to begin the zone-observations without delay, but also to make the reductions within due time, it appears not too early to prepare for these observations of southern zones by providing at once for a uniform and accurate determination of the positions of a sufficient number of stars, which ought to be used as fundamental stars in the reduction of the zones.

Dr. Gill having expressed to me his desire that I should make the selection of these stars, in order that they should be included in the new working list which was to be constructed about a year ago for the Transit circle of the Cape Observatory, I have drawn up the following list, which I now beg herewith to communicate to the astronomers of the southern hemisphere, expressing, in accordance with Dr. Gill, the wish that a sufficient number of them will co-operate towards the accurate determination of these stars in the same manner as has been done for the fundamental stars used in the zone-observations of the Astronomische Gesellschaft.

The selection of the stars included in the following catalogue was to be made upon the following principles :—

1. The stars ought to be distributed, at convenient intervals, as equally as possible over the area covered by the zones to be observed. This area may be considered to be conveniently

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filled with fundamental stars, if in each single zone comprising 10° of declination these stars follow each other on the average within 15^m to 20^m in the lower declinations, and 20^m to 25^m in the higher.

2. The stars ought to be of such a kind as will afford the most complete guaranty for accurate and accordant observation by different observers. The following stars should be avoided:—first, very bright stars, with whose observations rather large personalities are known occasionally to interfere; and second, double stars in which the companion might disturb the observation of the principal star, or possibly prevent its being referred by different observers to exactly the same point.

3. Where there is any choice no star ought to be admitted unless it be sufficiently observed in previous catalogues to allow of a determination of its proper motion, with an accuracy sufficient to allow the new position to be brought forward ten or fifteen years without diminishing its accuracy to an extent which would become appreciable in the reduction of the zone-observations.

The most elegant solution of the problem with respect to condition 1, and apparently also to condition 2, might have been attained by the exclusive use of the stars of one or two middle orders of magnitude, the stars of about 6 mag. and 7 mag., as fundamental stars for the zones. The number of these stars is sufficiently great in all regions to allow of a very uniform distribution of the fundamental points throughout, and, at the same time, the stars of 6 mag. and 7 mag. most probably are those objects which with the present meridian instruments are observed with the highest degree of precision in the single observation and with the least amount of systematic difference between different observers. But in the latter respect the apparent gain to be obtained by their use would be quite illusory, because the places of these stars themselves must be determined by referring them to the brighter stars, so that it remains impossible to get rid of any kind of personality to which the observations of brighter stars are liable. On the other hand, with the stars of 6 mag. and 7 mag., condition 3 could be fulfilled only in such an incomplete and unsatisfactory manner that their choice could not be recommended. The sacrifice of uniformity of distribution unavoidably connected with the choice of the stars of brighter magnitudes than the 6th, because of their varying frequency and comparatively small number, is really much the lesser evil.

Having, by condition 1, fixed the extent of the catalogue at a number of stars between 400 and 500, I have for the above reasons chosen those stars to form its main body whose magnitude, according to Gould's Uranometry, ranges between the limits 2·0 and 5·0. The limits of the zones, for which the fundamental stars were to be selected, were determined by the southern limit of the zones of the Astronomische Gesellschaft and the northern limit of the special circumpolar work already under-

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taken by the Cape Observatory, and therefore will be −23° and −80° declination. For the fundamental catalogue I have extended the northern limit to −20°, but generally retained the southern limit of −80°, because it does not seem desirable to combine the presently proposed observations with those of a greater number of stars within ten degrees of the South Pole. The latter work may be better made the object of other specially conducted observations besides those of the Cape Observatory already mentioned.

The Uranometria Argentina contains between declinations −20° and −80° (for the Equinox 1875) 380 stars not brighter than 2·0 mag. and not fainter than 5·0 mag., which are without companions such as might interfere with the accurate and uniform observation of the principal star, one or two variable stars, however, being included in this number, which during a part of their period fall somewhat below 5 mag. The exclusion of double stars has been adhered to with still greater rigidity than in the construction of the fundamental list for the southern zones (−2° to −23°) of the Astronomische Gesellschaft; even the stars with very faint or distant companions have been excluded with rare exceptions. For even where such companions cannot, by their faintness or their relative position, influence in any degree the proper estimate of the point to be observed, or of its correct position with respect to the wires, an observer—and more possibly a good observer—is liable to be troubled to a certain extent by their mere existence, as they are apt to detract, for a moment, part of the attention from what ought to constitute during the transit of a fundamental star the exclusive object of the full attention of the astronomer observing a zone—viz. that he shall fix, with the greatest possible accuracy, a point to which to refer the zone under observation. Only in some very few cases I have retained some of those known double stars, in which the possibility of a disturbing influence appears limited to a very small extent—wholly excluded in one case—viz. four objects (to which afterwards ϵ *Canis maj.* has been added as a fifth) already occurring in the Fundamental Catalogue of the Berliner Jahrbuch, and five more, which could not easily be superseded for want of other stars in the same region. Possibly some more objects of this kind will be found in the catalogue when the stars of the southern heavens have been examined more closely with regard to their duplicity than has yet been done, or reported to have been done.

Out of the 380 stars accordingly available, including the nine known double stars, it was not possible to retain for the catalogue more than 280. The remaining 100 were excluded, part of them being wholly superfluous in regions covered densely enough without them; part of them because their transits would take place so nearly at the same time with those of *several* other stars in remoter declinations that, by retaining them, the time necessary for complete observation of the catalogue would have been

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disproportionally extended. The majority of these excluded stars is contained in the hours 6 to 9 and 12 to 15 of Right Ascension, in which the brighter stars are most densely crowded together in the southern heavens. To replace these stars in more convenient positions, where it appeared at all necessary to replace them, and to fill up the greater gaps, chiefly in the hours 19 to 2, between the brighter stars, I had recourse to the stars noted 5·1 mag. to 6·0 mag. in the Uranometria Argentina, in some cases, for want of such stars, to still fainter ones, adding in this manner 193 stars between the limits −20° and −80°, sixteen of which are of the magnitude 6–7, and the four faintest of the magnitude 7–6; finally, two stars somewhat exceeding the upper limit of brightness (ε *Canis maj.* and β *Crucis*) were added, and, besides, five stars situated a little beyond the southern limit of −80°, in regions which could not be provided for sufficiently without them.

The catalogue accordingly contains 480 stars, which are distributed for the Equinox 1875 as follows:—

Hour	contains	Hour	contains	Hour	contains
0	19 stars	8	17 stars	16	23 stars
1	19 „	9	19 „	17	23 „
2	18 „	10	19 „	18	25 „
3	19 „	11	19 „	19	21 „
4	15 „	12	21 „	20	19 „
5	22 „	13	20 „	21	18 „
6	19 „	14	19 „	22	26 „
7	21 „	15	16 „	23	23 „

Zone	−20°	to	−30°	contains	99	stars
„	−30	„	−40	„	85	„
„	−40	„	−50	„	89	„
„	−50	„	−60	„	77	„
„	−60	„	−70	„	70	„
„	−70	„	−80	„	54	„
„	−80	„	−82·5	„	6	„

This distribution may be considered to be sufficiently uniform, and cannot be rendered more uniform, if conditions 2 and 3 remain fulfilled with equal approximation throughout. It has not been possible, with the available material, to reach the average number of twenty stars in each single hour of Right Ascension, while in some hours it was possible somewhat to exceed this number without interfering with an equable facility of getting through the catalogue in the observations to be made for the determination of the fundamental positions. The selection of the stars has been assisted throughout by laying down their positions, and those of a good many other stars of 5 mag. and 6 mag., besides those finally selected, in a map drawn upon a large

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scale, carefully scrutinising in every single instance what combination would afford the greatest advantage in the observations and the reduction of the zones. As to the determination of the fundamental stars, care was taken that, assuming five minutes to be required for a complete observation with a transit circle, in no Right Ascension should more stars interfere with each other than would allow of the whole catalogue being gone through n times completely in $4n$ observing nights. This scrutiny, however, was made with the catalogue drawn up for the year 1875, and has not been repeated with the Right Ascensions as finally brought forward to the epoch 1900.

In what degree it has been found possible to adhere to condition 3, regarding the means for determining the proper motions, may be inferred from the following statement. Of the 480 stars there occur—

In the Catalogue of Lacaille (princ. st.) ...	133
„ „ Bradley...	84
„ „ Piazzi	221
„ „ Johnson (St. Helena) ...	252
„ Cape Catalogue for 1840	410
„ „ „ 1850	452
„ „ „ 1860	248
„ „ „ 1880	463
„ Williamstown Catalogue	127
„ First Melbourne Catalogue	244

all of them, of course, being included in Gould's Catalogue (Catalogo General Argentino).

Five stars were inserted into the catalogue which are not contained in any previous catalogue except Gould's (three of them, however, forming part of the list of fundamental stars recently determined for the southern zones of the Astronomische Gesellschaft), and four others, which besides in this catalogue occur either in Stone's Catalogue, 1880, or in the Melbourne Catalogue. Two stars have been observed, previously to Gould and Stone 1880, only by Piazzi. Further, fourteen stars do not occur previously to the Cape Catalogue for 1850 (except Taylor's Catalogue, which contains some of them, but scarcely affords positions fit for determining proper motions), and the Cape 1850 Catalogue gives only one co-ordinate for three of these stars. Altogether, therefore, for twenty-five stars condition 3 is only very unsatisfactorily fulfilled; but in all these cases it proved to be impossible to replace the stars at convenient places by other stars already better determined.

The magnitudes are given in the following catalogue according to the determinations in the Uranometria Argentina. The designation of the stars is, for the great majority of them, likewise that of the same work. In those constellations,

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however, which are visible in middle Europe completely, or at least to a predominant part of their full extent, and which are comprised so far in the uranometrical researches of Bayer and Argelander, or in Flamsteed's catalogue work, Bayer-Argelander's nomenclature and Flamsteed's numbering, together with limits of the constellations drawn accordingly, ought to be retained, in my opinion, without any alterations (except those, of course, which are necessary to correct for accidental errors). From those constellations, small parts of which only can be seen in middle Europe and are investigated by Bayer and his European successors, *Argo*, *Centaurus*, *Lupus*, *Corona Australis*, Bayer's letters ought to be withdrawn, being only apt to interfere with the correct extension of his own principle of lettering over the whole constellation. In *Argo*, however, I do not agree with Gould completely. It seems to me impossible to supersede designations so thoroughly connected with the history of astronomy as α *Argus* or η *Argus* by other designations, and I consider it necessary, therefore, to retain the name of the entire constellation *Argo* in the designation of its brighter stars. The limit for distinguishing between this entire constellation and its separate parts will be drawn in the most simple way, if all the stars designated with Lacaille's Greek letters are counted through *Argo*, and the subdivisions *Carina*, *Puppis*, and *Vela* are introduced only to distinguish between the smaller stars designated by a threefold repetition of the Latin alphabet. According to this principle the names are set down in the catalogue, with one more trifling deviation from the Uranometria Argentina. In this work two stars in *Puppis* are lettered I and J, a similarity of designation too much apt to produce confusion, and better therefore to be avoided. I have suppressed the symbol J and inserted the star which has it appended in the Uranometria Argentina simply as *Puppis* 218 Gould.

The last column contains some remarks to note the few double stars, and to call the attention to neighbouring stars in such cases when they might give rise to mistakes. Those remarks would not appear to be needed in the determination of the positions of the stars of the catalogue with meridian instruments; but it might be inferred from experience that they will prove to be useful in the zone-observations themselves or in some other use of the present catalogue—for example, in field-work.

Catalogue.

No.	Name.	Mag.	R.A. 1900.	Ann. var.	Decl. 1900.	Ann. var.	Remarks.
			h m s	s	° ′	′	
1	ε Phœnicis	4	0 4 20	+3·1	−46 17·9	+0·33	
2	κ² Sculptoris	5–6	6 30	3·0	28 21·4	0·33	
3	θ Sculptoris	5–6	6 38	3·0	35 41·7	0·33	
4	ζ Tucanæ	4	14 51	+3·2	65 27·8	+0·35	

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Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
		h	m	s	s	°	′	′	
β Hydri	3–2	0	20	30	+3·3	−77	49·1	+0·34	
α Phœnicis	2–3		21	19	2·9	42	50·9	0·33	
Ceti, 49 G.	5–6		25	23	3·0	24	20·4	0·33	
λ¹ Phœnicis	5–4		26	35	2·9	49	21·4	0·33	
Sculptoris, 77 G.	6		28	44	3·0	30	6·6	0·33	
Phœnicis, 58 G.	6–5		29	43	2·9	52	55·5	0.33	
Ceti, 59 G.	6		32	12	3·1	25	19·1	0·33	
μ Phœnicis	5–4		36	36	2·8	46	38·0	0·33	
η Phœnicis	4–5		38	52	2·7	58	0·7	0·33	
λ² Sculptoris	6		39	21	2·9	38	58·4	0·33	
Ceti, 73 G.	5–6		39	47	3·0	22	33·4	0·33	
λ Hydri	6–5		45	7	2·1	75	28·0	0·33	
λ² Tucanæ	5–6		51	16	2·3	70	4·0	0·33	
α Sculptoris	4		53	47	2·9	29	53·9	0·32	
Phœnicis, 80 G.	6–7		57	48	2·5	57	32·4	0·32	
β Phœnicis	3–4	1	1	37	2·7	47	15·3	0·32	
ι Tucanæ	6–5		3	20	2·4	62	18·6	0·32	
Sculptoris, 102 G.	6		8	9	2·8	38	23·2	0·32	
Sculptoris, 109 G.	6		18	52	2·8	31	27·9	0·31	
Hydri, 9 G.	6–7		21	38	2·1	64	53·4	0.31	
γ Phœnicis	3–4		24	1	2·6	43	49·8	0·31	
48 Ceti	5–6		24	48	2·9	22	8·8	0·31	
δ Phœnicis	4		27	5	2·5	49	35·7	0·31	
Hydri, 14 G.	6–7		32	59	0·3	79	0·7	0·30	
Sculptoris, 129 G.	6		37	38	2·6	37	20·2	0·30	
ε Sculptoris	5		40	57	+2·8	25	33·1	0·30	9 mag. 5″
τ¹ Hydri	6–7		41	16	−0·1	79	39·2	0·30	
q² Eridani	5–6		42	17	+2·3	54	1·6	0·30	
ψ Phœnicis	5		49	38	2·4	46	47·6	0·29	
χ Eridani	4		52	4	2·3	52	6·4	0·30	
η² Hydri	5		52	24	1·5	68	8·4	0·30	
59 υ Ceti	4		55	17	2·8	21	33·7	0·29	
α Hydri	3		55	37	1·9	62	3·4	0·29	
ν Fornacis	5	2	0	0	2·7	29	46·6	0·29	
μ Fornacis	5		8	30	2·6	31	11·5	0·28	
Phœnicis, 135 G.	6		10	29	2·4	41	37·9	0·28	
φ Eridani	3–4		12	55	2·1	51	58·5	0·28	
κ Fornacis	5		17	57	+2·7	24	16·2	+0·28	

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No.	Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
			h	m	s	s	°	′	′	
43	δ Hydri	4	2	19	58	+1·1	−69	6·9	+0·27	
44	λ Horologii	6		22	6	1·7	60	45·5	0·27	
45	κ Hydri	6		22	16	0·3	74	5·9	0·27	
46	κ Eridani	4		23	19	2·2	48	10·1	0·27	
47	λ^1 Fornacis	6		28	56	+2·5	35	5·3	0·27	
48	μ Hydri	6–5		33	46	−1·5	79	32·7	0·26	
49	η Horologii	6–5		34	6	+2·0	52	58·6	0·26	
50	ι Eridani	4		36	43	2·4	40	17·0	0·26	
51	ε Hydri	4		38	2	0·9	68	41·8	0·26	
52	β Fornacis	4–5		44	55	2·5	32	49·6	0·25	
53	2 τ^2 Eridani	5–4		46	30	2·7	21	25·0	0·25	
54	β Horologii	5		56	54	1·1	64	28·1	0·24	
55	11 τ^3 Eridani	4		57	59	2·6	24	0·9	0·24	
56	Eridani, 58 G.	6–7		59	31	2·0	47	22·0	0·24	
57	μ Horologii	5–6	3	1	15	1·4	60	7·5	0·23	
58	θ Hydri	6		2	3	0·1	72	17·6	0·23	
59	12 Eridani	3–4		7	48	2·5	29	22·9	0·24	7-8 mag. 9
60	Horologii, 38 G.	6–7		10	1	1·5	57	41·7	0·23	
61	Fornacis, 79 G.	7–6		10	44	2·4	35	55·8	0·23	
62	*e* Eridani	4–5		15	55	+2·4	43	27·1	0·23	
63	ι Hydri	6		18	26	−1·6	77	45·2	0·22	
64	κ Reticuli	5		27	36	+1·0	63	17·5	0·21	
65	19 τ^5 Eridani	4		29	22	2·6	21	58·1	0·20	
66	Horologii, 45 G.	6		29	35	1·8	50	43·1	0·20	
67	*y* Eridani	5		33	30	2·1	40	36·1	0·20	
68	δ Fornacis	5		38	16	2·4	32	15·4	0·19	
69	27 τ^6 Eridani	4		42	32	2·6	23	32·7	0·18	
70	β Reticuli	4		42	56	0·7	65	7·3	0·19	
71	*g* Eridani	4		45	43	+2·2	36	30·2	0·18	
72	γ Hydri	3		48	47	−1·0	74	32·7	0·18	
73	Doradus, 1 G.	7–6		51	56	+1·6	52	58·9	0·18	
74	36 τ^9 Eridani	4		55	40	2·5	24	18·0	0·17	
75	δ Reticuli	5–4		57	9	0·9	61	41·0	0·17	
76	Eridani, 174 G.	6	4	1	29	2·5	27	55·7	0·17	
77	α Horologii	4		10	41	2·0	42	32·5	0·15	
78	α Reticuli	3–4		13	8	0·8	62	43·4	0·15	
79	γ Doradus	4–5		13	24	1·6	51	44·4	0·15	
80	Eridani, 212 G.	5–6		16	17	+2·6	20	52·7	+0·15	

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Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
		h	m	s	s	°	′	′	
43 *d* Eridani	4	4	20	16	+2·2	−34	15·0	+0·14	
η Reticuli	6		20	47	+0·6	63	37·5	0·14	
δ Mensæ	6		24	43	−4·2	80	27·0	0·13	
δ Cæli	5		27	47	+1·8	45	10·1	0·13	
52 υ² Eridani	4–3		31	40	2·3	30	46·0	0·13	
α Doradus	3		31	50	1·3	55	15·1	0·13	
Eridani, 258 G.	6		35	57	2·5	24	40·7	0·12	
α Cæli	5–4		37	20	1·9	42	3·3	0·12	
κ Doradus	6–5		42	50	+0·9	59	55·0	0·11	
μ Mensæ	6–5		44	3	−0·6	71	6·9	0·11	
2 ε Leporis	3–4	5	1	13	+2·5	22	30·3	0·08	
η² Pictoris	5–6		2	22	1·5	49	42·8	0·08	
ζ Doradus	5		3	48	+1·0	57	36·7	0·07	
β Mensæ	6–5		4	19	−0·8	71	27·1	0·08	
ξ Mensæ	6		10	14	−7·0	82	36·3	0·07	
θ Doradus	5		13	50	−0·1	67	17·8	0·07	
ο Columbæ	5		13	51	+2·1	34	59·4	0·07	
Columbæ, 12 G.	6		15	26	2·4	27	28·3	0·06	
ζ Pictoris	6		16	55	1·5	50	42·9	0·06	
Columbæ, 18 G.	6		23	53	1·9	41	1·3	0·05	
Pictoris, 20 G.	6–5		27	24	1·6	47	9·0	0·04	
ε Columbæ	4		27	39	2·1	35	32·6	0·05	
β Doradus	4		32	46	+0·5	62	33·3	0·04	
γ Mensæ	6–5		35	50	−2·4	76	24·9	0·03	
α Columbæ	2–3		36	1	+2·2	34	7·6	0·03	
13 γ Leporis	4		40	18	2·5	22	28·7	0·03	7–8 mag. pr. 1^{s} b. $1'\cdot6$
δ Doradus	4–5		44	35	0·1	65	46·4	0·02	
15 δ Leporis	4		47	0	2·6	20	53·1	0·01	
β Columbæ	3		47	26	2·1	35	48·4	0·03	
γ Pictoris	5–4		48	0	1·1	56	11·5	0·02	
η Columbæ	4		56	5	+1·8	42	49·2	+0·01	
κ Mensæ	6		57	2	−4·1	79	22·8	0·00	
Puppis, 1 G.	6	6	1	36	+1·7	45	2·2	0·00	6–7 mag. seq. 12^{s} a. $2'\cdot5$
Columbæ, 74 G.	6		2	15	2·3	29	44·8	0·00	
Pictoris, 47 G.	6–5		6	8	0·5	62	8·1	−0·01	
δ Pictoris	5		8	21	1·2	54	56·8	0·01	
κ Columbæ	5		12	59	+2·1	35	6·4	0·02	
α Mensæ	5–6		13	13	−1·8	74	43·0	−0·02	

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No.	Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
			h	m	s	s	°	′	′	
119	1 ζ Canis maj.	3	6	16	28	+2·3	−30	1·2	−0·02	
120	λ Canis maj.	6–5		24	27	+2·2	32	31·0	0·03	
121	π² Doradus	6		26	20	−0·5	69	38·0	0·04	
122	5 ξ² Canis maj.	5		30	52	+2·5	22	53·1	0·04	
123	*N* Carinæ	5		32	46	1·3	52	53·5	0·05	
124	ν Argus	3–4		34	42	1·8	43	6·4	0·05	
125	13 κ Canis maj.	4		46	6	2·2	32	23·5	0·06	
126	α Pictoris	3–4		47	10	0·6	61	50·1	0·06	
127	τ Argus	3		47	27	+1·5	50	29·7	0·07	
128	ζ Mensæ	6		48	23	−4·9	80	42·5	0·07	
129	ι Volantis	6–5		52	35	−0·7	70	50·3	0·08	
130	Canis maj., 105 G.	6		54	30	+2·5	25	16·8	0·08	10–11 mag
131	ε Canis maj.	2–1		54	42	2·4	28	50·1	0·08	
132	Carinæ, 27 G.	6–5	7	2	26	+1·1	56	35·8	0·09	
133	θ Mensæ	6–5		2	55	−3·7	79	16·6	0·09	
134	25 δ Canis maj.	2		4	20	+2·4	26	14·0	0·09	
135	*I* Puppis	5		9	43	1·7	46	35·6	0·10	
136	π Argus	3–2		13	37	2·1	36	55·1	0·10	
137	29 Canis maj.	5–6		14	30	2·5	24	22·5	0·10	
138	δ Volantis	4		16	53	0·0	67	46·4	0·11	
139	31 η Canis maj.	3–2		20	8	2·4	29	6·4	0·11	
140	Puppis, 108 G.	5–6		29	46	2·6	22	4·8	0·13	
141	*Q* Carinæ	5–6		33	11	1·5	52	18·6	0·13	
142	*f* Puppis	5		33	40	2·2	34	44·6	0·13	
143	*l* Puppis	4–5		39	47	2·4	28	42·9	0·14	
144	*c* Puppis	4–3		41	41	+2·1	37	43·5	0·14	
145	ζ Volantis	4–5		43	4	−0·7	72	21·9	0·14	
146	7 ξ Argus	4–3		45	5	+2·5	24	36·5	0·15	
147	*P* Puppis	4–5		46	12	1·8	46	7·2	0·15	
148	*a* Puppis	4		48	46	2·1	40	19·1	0·15	
149	Volantis, 19 G.	6		49	1	0·4	65	56·4	0·15	
150	Puppis, 218 G.	4–5		50	22	1·8	47	50·5	0·15	
151	χ Argus	4–3		54	14	1·5	52	42·8	0·16	
152	ζ Argus	2–3	8	0	5	2·1	39	43·3	0·17	
153	ρ Argus	3		3	17	2·5	24	0·9	0·17	
154	γ Argus	3		6	27	1·8	47	2·5	0·17	
155	*q* Puppis	5–4		14	49	2·2	36	21·0	0·18	
156	ε Argus	2		20	28	+1·2	59	11·3	−0·19	

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Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
		h	m	s	s	°	′	′	
θ Chamæleontis	5–4	8	23	39	−1·7	−77	9·7	−0·20	
β Volantis	4		24	39	+0·7	65	48·1	0·20	
e Velorum	5–4		34	8	2·1	42	38·4	0·21	
Pyxidis, 19 G.	6–5		34	46	2·6	22	19·4	0·21	
β Pyxidis	4–5		36	12	2·3	34	57·1	0·21	
d Carinæ	5–4		38	24	1·3	59	24·2	0·21	
α Pyxidis	4		39	34	2·4	32	49·5	0·21	
δ Argus	2		41	56	1·7	54	20·5	0·22	
a Velorum	4		42	38	+2·0	45	40·5	0·22	
η Chamæleontis	6–5		44	44	−1·9	78	36 0	0·22	
γ Pyxidis	4–5		46	18	+2·5	27	20·3	0·22	
c Carinæ	4		52	47	1·4	60	15·8	0·23	
c Velorum	5–4	9	0	42	2·1	46	41·9	0·24	
α Volantis	4		0	52	1·0	65	59·7	0·24	
λ Argus	2–3		4	19	2·2	43	1·7	0·24	
G Carinæ	5		4	53	0·2	72	12·0	0·24	
β Argus	2		12	6	0·7	69	18·3	0·25	
ι Argus	2–3		14	25	1·6	58	51·3	0·25	
θ Pyxidis	5–6		17	4	2·6	25	32·4	0·25	
κ Argus	3–2		19	1	1·9	54	35·0	0·25	
ϵ Antliæ	5		25	7	2·5	35	30·8	0·26	
ψ Argus	4–3		26	46	2·4	40	1·7	0·26	
Hydræ, 160 G.	6		28	36	2·8	20	40·4	0·26	
H Carinæ	6		30	51	0·5	72	38·2	0·26	
h Carinæ	5		31	32	1·7	58	47·1	0·27	
M Velorum	5		33	15	2·1	48	54·4	0·27	
θ Antliæ	5		39	45	2·7	27	18·7	0 27	
l Carinæ	4–5		42	30	1·6	62	2·8	0·27	
m Velorum	5		47	49	2·3	46	4·7	0·28	
φ Argus	4		53	21	2·1	54	5·5	0·28	
η Antliæ	6–5		54	35	2·6	35	24·7	0·28	
Hydræ, 193 G.	6		59	44	2·8	23	48·0	0·29	
q Velorum	4	10	10	33	2·5	41	37·6	0·29	
ω Argus	4–3		11	22	1·4	69	32·5	0·30	
Velorum, 202 G.	6–7		16	12	2·4	47	11·8	0·30	
Antliæ, 64 G.	6–5		19	7	2·6	37	30·1	0·30	
I Carinæ	4–5		22	25	1·2	73	31·3	0·30	
α Antliæ	4–5		22	34	+2·7	30	33·5	−0·30	

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No.	Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
			h	m	s	s	°	′	′	
195	*s* Carinæ	5-4	10	24	13	+2·2	−58	13·7	−0·30	
196	*p* Carinæ	4-3		28	28	2·1	61	10·2	0·31	
197	44 Hydræ	6		29	15	2·8	23	13·8	0·31	
198	*p* Velorum	4		33	6	2·5	47	42·3	0·31	
199	γ Chamæleontis	4-5		34	17	0·7	78	5·4	0·31	
200	*x* Velorum	5		35	19	2·4	55	4·9	0·31	
201	θ Argus	3		39	23	2·1	63	52·2	0·31	
202	μ Argus	3		42	28	2·6	48	53·5	0·31	
203	δ^2 Chamæleontis	5		44	51	0·6	80	0·8	0·32	6 mag. pr.32^s b.4′
204	*u* Carinæ	4		49	25	2·4	58	19·3	0·32	
205	ι Antliæ	5		52	3	2·8	36	35·9	0·32	
206	*i* Velorum	4-5		55	33	2·7	41	41·3	0·32	
207	χ Hydrae, 26 Hev.	4-5	11	0	31	2·9	26	45·3	0·32	
208	Carinæ, 259 G.	6		3	14	2·1	70	20·2	0·32	
209	*x* Carinæ	5-4		4	19	2·5	58	26·0	0·32	
210	11 β Crateris	4		6	45	2·9	22	16·8	0·33	
211	Carinæ, 264 G.	6-5		8	37	2·5	63	37·5	0·32	
212	π Centauri	4-5		16	27	2·7	53	56·6	0.33	
213	Centauri, 29 G.	6-5		20	39	2·9	35	30·8	0·33	
214	ξ Hydrae	4		28	5	2·9	31	18·3	0·33	
215	C^2 Centauri	5-6		31	5	2·9	47	5·2	0·33	
216	λ Centauri	3-4		31	9	2·7	62	28·0	0 33	
217	π Chamæleontis	6		33	8	2·5	75	20·6	0·33	
218	ο Hydræ	5		35	14	3·0	34	11·4	0·33	
219	λ Muscæ	4		40	53	2·8	66	10·4	0·33	
220	Centauri, 65 G.	5-4		41	41	2·9	60	37·3	0·33	
221	Hydræ, 298 G.	6		43	42	3·0	26	11·6	0·33	
222	*B* Centauri	5		46	9	3·0	44	37·0	0·33	
223	Crucis, 2 G.	6		53	12	3·0	55	45·6	0·33	
224	ε Chamæleontis	5		54	39	2·9	77	39·8	0·33	
225	θ^1 Crucis	5-4		57	56	3·0	62	45·3	0·33	
226	Centauri, 88 G.	6-5		58	28	3·1	41	52·4	0·33	
227	δ Centauri	3	12	3	10	3·1	50	9·9	0·33	
228	2 ε Corvi	3		4	59	3·1	22	3·8	0·33	
229	δ Crucis	3-4		9	50	3·1	58	11·5	0·33	
230	ε Muscæ	5-4		12	11	3·2	67	24·2	0·33	
231	β Chamæleontis	5-4		12	27	3·4	78	45·4	0·33	
232	ε Crucis	4		15	58	+3·2	59	50·9	−0·33	

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Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
		h	m	s	s	°	′	′	
Centauri, 117 G.	7–6	12	19	51	+3·2	−41	57·5	−0·33	
x^2 Centauri	6		20	6	3·1	34	37·9	0·33	
Hydrae, 323 G.	6–5		21	36	3·1	32	16·5	0·33	
σ Centauri	4–5		22	37	3·2	49	40·6	0·33	
γ Crucis	2		25	37	3·3	56	33·1	0·34	
γ Muscæ	4		26	30	3·5	71	34·8	0·33	
9 β Corvi	2–3		29	7	3·1	22	50·5	0·33	
γ Centauri	2–3		36	0	3·3	48	24·6	0·33	
Hydræ, 330 G.	6		38	41	3·2	27	46·5	0·33	
β Muscæ	3–4		40	8	3·6	67	33·6	0·33	
β Crucis	2–1		41	53	3·5	59	8·5	0·33	
p Centauri	5–6		45	16	3·2	33	27·2	0·33	
n Centauri	4–5		47	53	3·3	39	38·1	0·33	
δ Muscæ	4–3		55	22	4·0	71	0·5	0·32	
ξ² Centauri	5	13	1	5	3·5	49	22·2	0·32	
Centauri, 177 G.	6		1	42	3·5	52	55·4	0·32	
Centauri, 183 G.	5–6		6	2	3·7	59	23·3	0·32	
η Muscæ	5–6		8	28	4·0	67	21·8	0·32	
r Centauri	6–5		11	20	3·3	30	58·5	0·32	
Centauri, 196 G.	6		11	26	3·4	43	27·0	0.32	
46 γ Hydræ	3–4		13	29	3·2	22	38·5	0·32	
ι Centauri	3		14	59	3·4	36	11·0	0·32	
d Centauri	4–5		25	14	3·5	38	53·4	0·31	
Hydræ, 350 G.	6		27	2	3·3	28	10·7	0·31	
Chamæleontis, 49 G.	6–7		30	38	5·0	75	10·4	0·31	
ε Centauri	3–2		33	33	3·8	52	57·5	0·31	
1 *i* Centauri	4–5		40	1	3·4	32	32·2	0·30	
M Centauri	5		40	19	3·8	50	55·8	0·30	
μ Centauri	3–4		43	36	3·6	41	58·5	0·30	
ζ Centauri	3–2		49	18	3·7	46	47·7	0·30	
Centauri, 294 G.	6–5		50	25	4·3	63	11·7	0.30	
φ Centauri	4		52	11	3·6	41	36·7	0·29	
47 Hydræ	6		52	55	3·4	24	29·1	0·29	
49 π Hydræ	4–3	14	0	40	3·4	26	11·9	0·29	
5 θ Centauri	3–2		0	48	3·5	35	52·6	0·30	11 mag. 3′
η Apodis	5–6		5	38	7·1	80	32·3	0·29	
ι Lupi	4		13	0	3·8	45	35·8	0·28	
v Centauri	5		13	20	+4·1	55	55·5	−0·28	

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No.	Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
			h	m	s	s	°	′	′	
271	Circini, 10 G.	6	14	16	48	+4·9	67	44·4	−0·28	
272	*a* Centauri	5		16	53	3·7	39	3·2	0·28	
273	Libræ, 3 G.	6–5		19	6	3·4	24	21·1	0·27	
274	52 Hydræ	5–6		22	18	3·5	29	2·5	0·27	
275	η Centauri	2–3		29	10	3·8	41	43·1	0·27	
276	α Lupi	3–2		35	17	4·0	46	57·5	0·26	
277	α Apodis	4		35	25	7·1	78	37·1	0·26	
278	Circini, 19 G.	6		37	21	4·7	62	26·9	0·26	7 mag. pr. 1^m46^s a.
279	c^1 Centauri	4–5		37	32	3·6	34	44·5	0·26	
280	*b* Lupi	6		40	2	4·2	51	57·6	0·26	6 mag. seq. 11^s b. 1
281	Apodis 18 G.	6		46	28	6·6	76	15·3	0·25	
282	Circini, 29 G.	6		47	53	4·6	59	42·1	0·25	
283	Centauri, 381 G.	6		49	36	3·7	33	27·0	0·25	
284	β Lupi	3		51	58	3·9	42	43·9	0·25	
285	γ Scorpii 1 Hev.	3–4		58	12	3·5	24	53·3	0·24	
286	π Lupi	4–5		58	18	4·1	46	39·6	0·24	
287	ζ Lupi	4–3	15	5	7	4·3	51	43·1	0·23	
288	γ Trianguli austr.	3		9	33	5·5	68	18·6	0·23	
289	β Circini	5–4		9	41	4·7	58	25·6	0·23	
290	δ Lupi	4–3		14	48	3·9	40	17·1	0·22	
291	ϕ^1 Lupi	4–3		15	28	3·8	35	53·9	0·22	
292	κ^1 Apodis	6		20	36	6·4	73	2·5	0·22	
293	ε Trianguli austr.	5–4		27	33	5·4	65	58·8	0·21	
294	γ Lupi	3		28	8	4·0	40	49·9	0·21	
295	Scorpii 3 Hev.	4–5		30	57	3·6	27	48·3	0·20	
296	Normæ, 2 G.	6		31	24	4·4	52	2·6	0·20	
297	5 χ Lupi	5–4		44	36	3·8	33	19·3	0·19	
298	β Trianguli austr.	3		46	20	5·2	63	7·3	0·19	
299	5 ρ Scorpii	5–4		50	42	3·7	28	55·3	0·18	
300	7 δ Scorpii	2–3		54	25	3·5	22	20·2	0·17	
301	δ Normæ	5		59	25	4·2	44	54·1	0·17	
302	θ Lupi	5	16	0	1	3·9	36	31·8	0·17	
303	10 ω^2 Scorpii	5		1	33	3·5	20	36·0	0·17	9 ω^1 4–5 mag. pr b. 12′·0
304	κ Normae	5–6		5	35	4·7	54	22·2	0·16	
305	δ Trianguli austr.	4–5		6	20	5·4	63	25·8	0·16	
306	γ^2 Normæ	5–4		12	21	4·5	49	54·6	0·15	
307	20 σ Scorpii	3–4		15	7	3·6	25	21·1	0·15	9 mag. 21″
308	Scorpii, 62 G.	6		17	15	+4·0	38	57·6	−0·15	

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			h	m	s	s	°	′	′	
309	ζ Trianguli austr.	6–5	16	17	41	+6·3	−69	51·6	−0·15	
310	γ Apodis	4		18	6	9·0	78	40·3	0·15	
311	Trianguli austr., 33 G.	6		21	56	5·3	61	24·7	0·14	
312	Normæ, 59 G.	6		22	27	4·3	46	1·3	0·14	
313	*N* Scorpii	5–4		24	51	3·9	34	29·2	0·14	
314	μ Normæ	5–6		26	58	4·2	43	50·0	0·13	
315	β Apodis	4–5		28	47	8·4	77	18·4	0·14	
316	23 τ Scorpii	3–4		29	39	3·7	28	0·3	0·12	
317	α Trianguli austr.	2		38	4	6·3	68	50·6	0·12	
318	η Aræ	4		41	9	5·1	58	51·8	0·11	
319	26 ε Scorpii	3		43	42	3·9	34	6·7	0·11	
320	μ^1 Scorpii	4–3		45	5	4·0	37	52·5	0·11	
321	ζ^2 Scorpii	4–3		47	33	4·2	42	11·4	0·11	
322	ζ Aræ	3		50	20	4·9	55	50·0	0·10	
323	24 Ophiuchi	6		50	46	3·6	22	59·5	0·10	
324	ϵ^1 Aræ	4		51	37	4·8	53	0·4	0·10	
325	Scorpii, 117 G.	6–5		55	25	3·9	31	59·7	0·09	
326	η Scorpii	4–3	17	4	59	4·3	43	6·5	0·09	
327	Scorpii, 139 G.	6		10	33	3·9	32	32·9	0·07	
328	ι Apodis	6		10	56	6·6	70	1·0	0·07	7 mag. pr. $1^{m}49^{s}$ b. 5′·4
329	40 ξ Ophiuchi	5		14	59	3·6	21	0·3	0·07	
330	42 θ Ophiuchi	3–4		15	52	3·7	24	53·9	0·06	
331	β Aræ	3		16	59	5·0	55	26·1	0·06	
332	44 Ophiuchi	4–5		20	15	3·7	24	5·0	0·06	
333	45 *d* Ophiuchi	5		20	57	3·8	29	46·5	0·06	
334	δ Aræ	4–3		22	4	5·4	60	36·0	0·06	
335	α Aræ	3		24	7	4·6	49	47·8	0·05	
336	51 Ophiuchi	5		25	18	3·7	23	53·1	0·05	
337	35 λ Scorpii	2–3		26	49	4·1	37	1·8	0·05	
338	π Aræ	6		29	53	4·9	54	26·0	0·05	
339	θ Scorpii	2		30	7	4·3	42	56·0	0·04	
340	κ Scorpii	3–2		35	34	4·1	38	58·7	0·04	
341	η Pavonis	4–3		35	55	5·9	64	40·5	0·04	
342	μ Aræ	6–5		36	12	4·8	51	46·7	0·04	
343	ι^1 Scorpii	3–4		40	36	4·2	40	5·2	0·03	
344	3 *X* Sagittarii	4–6		41	15	3·8	27	47·5	0·03	
345	*G* Scorpii	3–4		43	3	4·1	37	0·7	0·03	
346	Apodis, 66 G.	6		57	17	+8·4	75	53·5	−0·01	

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No.	Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
			h	m	s	s	°	′	′	
347	π Pavonis	5–4	17	58	57	+5·8	−63	40·3	−0·01	
348	10 γ Sagittarii	3		59	23	3·8	30	25·6	0·00	
349	ε Telescopii	5	18	3	48	4·4	45	58·3	0·00	
350	13 μ Sagittarii	4		7	46	3·6	21	5·1	+0·01	
351	Telescopii, 6 G.	6–5		8	42	5·1	56	3·3	0·01	
352	η Sagittarii	3–4		10	51	4·1	36	47·5	0·01	
353	ξ Pavonis	4–5		14	0	5·5	61	32·4	0·02	
354	19 δ Sagittarii	3		14	35	3·8	29	52·3	0·02	
355	20 ε Sagittarii	2–3		17	32	4·0	34	25·9	0·02	
356	α Telescopii	3–4		19	33	4·4	46	1·5	0·02	
357	Pavonis, 30 G.	6–7		20	5	7·7	74	1·7	0·02	
358	22 λ Sagittarii	3		21	47	3·7	25	28·7	0·02	
359	θ Coronæ austr.	5		26	22	4·3	42	23·1	0·04	
360	ζ Pavonis	4		31	21	7·0	71	30·8	0·04	
361	Br. 2333	6		32	25	3·6	23	35·4	0·04	
362	λ Coronæ austr.	5–6		36	55	4·1	38	25·1	0·05	
363	Pavonis, 41 G.	6		37	25	7·4	73	6·2	0·05	
364	η¹ Coronæ austr.	6–5		41	37	4·3	43	47·4	0·06	
365	λ Pavonis	4–5		42	57	5·6	62	18·1	0·06	
366	30 Sagittarii	6–7		44	50	3·6	22	16·6	0·06	
367	κ Pavonis	5		46	38	6·2	67	21·6	0·06	
368	34 σ Sagittarii	2–3		49	4	3·7	26	25·2	0·07	
369	λ Telescopii	5		50	27	4·8	53	4·2	0·07	
370	ε Coronæ austr.	5–6		51	58	4·1	37	14·3	0·07	
371	38 ζ Sagittarii	3		56	14	3·8	30	1·4	0·08	dpl. 4 mag. & 4 mag 0″·4
372	ρ Telescopii	6–5		58	25	4·8	52	29·3	0·08	
373	40 τ Sagittarii	4–3	19	0	42	3·7	27	49·0	0·08	
374	α Coronæ austr.	4		2	40	4·1	38	3·7	0·08	
375	41 π Sagittarii	3		3	49	3·6	21	11·0	0·09	
376	Pavonis, 60 G.	6–5		7	9	6·1	66	50·0	0·09	
377	Coronæ austr., 49 G.	6–7		7	23	4·4	45	21·7	0·09	
378	α Sagittarii	4		16	57	4·2	40	48·2	0·11	
379	Telescopii, 59 G.	6		19	46	4·8	54	31·5	0·11	
380	Sagittarii, 186 G.	6		20	37	3·8	29	56·5	0·11	
381	ι Telescopii	5–6		27	48	4·5	48	18·8	0·12	
382	52 *h* Sagittarii	5–4		31	13	5·1	25	6·2	0·13	11 mag. 3″
383	Pavonis, 70 G.	6–5		37	53	7·0	72	44·8	0·13	
384	Sagittarii, 228 G.	6–5		39	39	+3·8	32	9·1	+0·14	

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No.	Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
			h	m	s	s	°	′	″	
385	*ν* Telescopii	5–6	19	39	51	+4·9	−56	36·2	+0·14	
386	56 *f* Sagittarii	5		40	32	3·5	20	0·0	0·14	
387	Pavonis, 75 G.	6		45	57	5·3	61	25·7	0·15	
388	*ι* Sagittarii	4–5		48	22	4·1	42	7·8	0·15	
389	*ε* Pavonis	4		49	2	7·0	73	10·5	0·15	
390	θ^1 Sagittarii	4–5		53	14	3·9	35	32·8	0·16	
391	62 *c* Sagittarii	5		56	30	3·7	27	59·3	0·16	
392	Sagittarii, 269 G.	6–7		57	49	3·6	22	52·0	0·16	
393	*δ* Pavonis	3–4		58	56	5·9	66	26·2	0·15	
394	*ξ* Telescopii	5–6		59	44	4·6	53	10·0	0·16	
395	4 Capricorni	6	20	12	9	3·5	22	7·1	0·18	
396	κ^1 Sagittarii	5–6		15	40	4·1	42	21·8	0·18	
397	*α* Pavonis	2		17	45	4·8	57	3·4	0·18	
398	Sagittarii, 296 G.	6		19	19	3·7	28	59·3	0·19	
399	*ρ* Pavonis	5		29	12	5·1	61	52·4	0·20	
00	μ^1 Octantis	6–7		29	41	7·6	76	31·8	0·20	
01	*α* Indi	3		30	32	4·2	47	38·4	0·20	
02	Microscopii, 13 G.	6		34	3	3·8	33	47·1	0·21	
03	*β* Pavonis	3–4		35	57	5·5	66	33·8	0·21	
04	*η* Indi	5–4		36	41	4·4	52	16·7	0·21	
05	16 *ψ* Capricorni	4–5		40	10	3·6	25	37·8	0·21	
06	*ι* Microscopii	5–6		41	42	4·1	44	21·1	0·21	
07	18 *ω* Capricorni	4–5		45	52	3·6	27	17·6	0·22	
08	*β* Indi	4–3		46	59	4·7	58	49·9	0·22	
09	Microscopii, 33 G.	6–5		47	10	3·9	40	11·0	0·22	
10	*α* Octantis	6–5		52	38	7·5	77	24·3	0·22	
11	*γ* Microscopii	5		55	9	3·7	32	39·0	0·23	
12	*ζ* Microscopii	5–6		56	34	3·9	39	1·2	0·23	
13	24 *A* Capricorni	5	21	1	17	3·5	25	24·3	0·24	
14	*o* Pavonis	5–6		3	58	5·7	70	32·1	0·24	
15	Indi, 23 G.	6		8	38	4·3	53	40·1	0·24	
16	4 Piscis austr.	5		11	52	3·6	32	35·4	0·25	
17	θ^1 Microscopii	5		14	22	3·8	41	14·0	0·25	
18	*γ* Pavonis	4–5		18	11	5·0	65	49·1	0·27	
19	*γ* Indi	6–7		19	8	4·3	55	5·6	0·25	
20	34 *ζ* Capricorni	4		20	58	3·4	22	50·7	0·26	
21	Gruis, 3 G.	6		26	55	3·9	45	17·5	0·26	
22	Indi, 40 G.	6–7		30	4	+4·9	65	16·3	+0·26	

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No.	Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
			h	m	s	s	°	′	′	
423	ν Octantis	4	21	30	22	+6·9	−77	48·9	+0·26	
424	41 Capricorni	6–5		36	18	3·4	23	42·9	0·27	
425	9 ι Piscis austr.	5		39	0	3·6	33	29·0	0·27	
426	ο Indi	6–5		42	21	5·2	70	5·6	0·27	
427	γ Gruis	3		47	52	3·6	37	50·2	0·28	
428	δ Indi	5		51	7	4·1	55	28·1	0·28	
429	Capricorni, 134 G.	7–6		53	9	3·3	21	39·6	0·28	
430	ε Indi	5		55	43	4·6	57	11·8	0·25	
431	λ Gruis	5–4	22	0	6	3·6	40	1·5	0·29	
432	α Gruis	2		1	56	3·8	47	26·7	0·29	
433	14 μ Piscis austr.	5–4		2	33	3·5	33	28·6	0·29	
434	16 λ Piscis austr.	5		8	38	3·4	28	15·7	0·29	
435	ε Octantis	6–5		8	50	7·1	80	56·3	0·29	
436	μ¹ Gruis	5		9	36	3·6	41	50·7	0·29	
437	α Tucanæ	3		11	38	4·2	60	45·5	0·29	
438	Gruis, 37 G.	6–5		11	41	3·9	54	6·3	0·30	
439	ν Indi	6–5		15	55	5·0	72	44·2	0·30	
440	47 Aquarii	6–5		16	6	3·3	22	5·8	0·30	
441	ν Gruis	6–5		22	47	3·5	39	38·2	0·30	7 mag. pr. 25ˢ b. 2′
442	δ¹ Gruis	4		23	18	3·6	44	0·4	0·30	δ² 4–5 mag. seq. 3 a. 15′·3
443	ν Tucanæ	5–6		26	15	4·1	62	29·8	0·30	
444	59 υ Aquarii	5–6		29	13	3·3	21	13·1	0·31	
445	Piscis austr., 49 G.	6		33	13	3·4	33	36·2	0·31	
446	18 ε Piscis austr.	4		35	7	3·3	27	34·0	0·31	
447	β Octantis	4–5		35	53	6·6	81	54·4	0·31	
448	β Gruis	2		36	42	3·6	47	24·5	0·31	
449	ε Gruis	3–4		42	31	3·6	51	50·6	0·31	
450	Gruis, 69 G.	6		45	21	3·4	39	41·2	0·32	
451	Tucanæ, 18 G.	6		45	41	3·9	63	43·1	0·32	
452	22 γ Piscis austr.	5–4		46	58	3·3	33	24·4	0·32	9 mag. 4″
453	ρ Indi	6		47	43	4·3	70	36·5	0·32	
454	ζ Gruis	4		54	58	3·6	53	17·4	0·32	
455	Indi, 80 G.	6		58	16	4·0	69	21·7	0·32	
456	θ Gruis	4	23	1	15	3·4	44	3·7	0·32	
457	86 c¹ Aquarii	4–5		1	19	3·2	24	17·0	0·32	
458	88 c² Aquarii	4		4	7	3·2	21	42·9	0·32	
459	ι Gruis	4		4	42	3·4	45	47·3	0·32	Com. 10 mag.
460	Tucanæ, 25 G.	6–5		10	57	+3·6	62	32·7	+0·33	

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No.	Name.	Mag.	R.A. 1900.			Ann. var.	Decl. 1900.		Ann. var.	Remarks.
			h	m	s	s	°	′	′	
461	γ Tucanæ	4	23	11	36	+3·5	−58	47·0	+0·33	
462	γ Sculptoris	4–5		13	25	3·2	33	4·7	0·32	
463	Sculptoris, 11 G.	6		15	56	3·2	27	32·0	0·33	
464	98 b^1 Aquarii	4–5		17	44	3·1	20	38·7	0·33	
465	*o* Gruis	6–5		21	1	3·4	53	16·6	0·33	
466	Tucanæ, 33 G.	6		23	14	3·5	63	39·7	0·33	
467	Octantis, 83 G.	6		25	52	4·0	77	56·3	0·33	
468	β Sculptoris	5		27	37	3·2	38	22·2	0·33	
469	101 b^3 Aquarii	5–4		28	3	3·1	21	28·0	0·33	
470	ι Phœnicis	4–5		29	42	3·2	43	10·0	0·33	
471	Phœnicis, 11 G.	4–5		32	28	3·2	46	2·7	0·33	
472	μ Sculptoris	5–6		35	23	3·2	32	37·6	0·33	
473	Tucanæ, 35 G.	6–7		38	41	3·5	71	2·9	0·33	
474	σ Phœnicis	5		41	57	3·2	50	46·9	0·33	
475	δ Sculptoris	5–4		43	43	3·1	28	41·0	0·33	
476	Aquarii, 274 G.	6–7		48	11	3·1	24	47·1	0·33	
477	π Phœnicis	5		53	44	3·1	53	18·3	0·33	
478	ε Tucanæ	4–5		54	43	3·2	66	8·0	0·33	
479	θ Octantis	5–6		56	29	3·2	77	37·0	0·33	
480	Tucanæ, 45 G.	6		59	37	+3·1	−71	59·6	+0·33	

Measures of Southern Double Stars, made at the Observatory, Sydney, New South Wales.

(*Communicated by H. C. Russell, B.A., F.R.S.*)

The following are measures of interesting southern double stars made at Sydney Observatory during 1886 with two measures of *α Centauri* in 1884. With a view of testing the measures of position-angles several measures of *α Centauri* have been made. Taking $\Delta\alpha$ and $\Delta\delta$, it will be seen that the results obtained in this way by Mr. Pollock are rather less than his direct measures, but he thinks his direct measures are more reliable. There is some discrepancy in the measures of *h* 5028, the large star of which Burnham discovered to be double (B 759), and β makes the distance of the wide pair 34″·81. Herschel gives two measures with his reflector distances, 20″ and 15″, and the Sydney measure in 1886 is 15″·27.